

Ser. No. 10/725,165

Amendments to the Claims

1. (Currently amended) A journal bearing system comprising:  
a bushing; and  
a journal pin within the bushing and rotatable relative to the bushing about a longitudinal axis,  
wherein at least one of the bushing and journal pin has an engagement surface with an engagement length comprising a substrate material and a solid lubricant, a concentration of the solid lubricant varying longitudinally along the engagement length.
2. (Original) The system of claim 1 wherein:  
the concentration is higher near ends of the engagement length than in an intermediate portion.
3. (Original) The system of claim 1 wherein:  
the concentration varies by at least 50% of a maximum value along said engagement length.
4. (Original) The system of claim 1 wherein:  
the base material comprises a coating applied to a substrate.
5. (Original) The system of claim 1 wherein:  
the substrate comprises a copper-based material; and  
the solid lubricant comprises a metal.
6. (Original) The system of claim 5 wherein:  
the solid lubricant metal comprises lead.
7. (Original) The system of claim 6 wherein the concentration is:  
greater than 30% at first and second locations near first and second ends of the engagement length; and

Ser. No. 10/725,165

10-30% in an third location, between the first and second locations.

8. (Original) The system of claim 6 wherein the concentration is:  
greater than 35% at first and second locations within first and second terminal 20% of the engagement length; and  
10-30% over a majority of a central 50% of the length.
9. (Original) The system of claim 1 supporting a gear in a turbofan transmission.
10. (Currently amended) A hydrodynamic bearing apparatus comprising:  
a bushing;  
a journal pin rotatable relative to the bushing about a longitudinal axis; and  
means for providing extended operation after a lubricant loss.
11. (Original) The apparatus of claim 10 wherein:  
the means comprise a longitudinally-varying lead concentration within a copper matrix.
12. (Withdrawn) A method for preparing a lining for a hydrodynamic bearing comprising:  
applying a solid lubricant along the lining, the solid lubricant being applied with  
concentration that varies along a length of the lining.
13. (Withdrawn) The method of claim 12 wherein:  
the applying of the solid lubricant comprises sputtering.
14. (Withdrawn) The method of claim 12 wherein:  
the applying of the solid lubricant is simultaneous with the application of a base material.
15. (Previously presented) The system of claim 1 wherein the journal pin has at least one lubrication passageway.

Ser. No. 10/725,165

16. (Previously presented) The system of claim 15 wherein the at least one lubrication passageway extends to the engagement surface.
17. (Previously presented) The system of claim 5 wherein the journal pin has at least one lubrication passageway.
18. (Previously presented) The system of claim 17 wherein the at least one lubrication passageway extends to the engagement surface.
19. (Previously presented) The system of claim 7 wherein the journal pin has at least one lubrication passageway.
20. (Previously presented) The system of claim 19 wherein the at least one lubrication passageway extends to the engagement surface.
21. (Previously presented) The apparatus of claim 10 wherein the journal pin has at least one lubrication passageway.
22. (Previously presented) The system of claim 10 wherein the means is on the bushing and the bushing is formed by a coating comprising substrate material and solid lubricant on an interior cylindrical surface of a steel gear in a geared turbofan transmission.
23. (Previously presented) The system of claim 10 wherein the means comprises a coating of the bushing and the bushing is a gear in a geared turbofan transmission.
24. (New) A hydrodynamic bearing apparatus comprising:
  - a bushing;
  - a journal pin rotatable relative to the bushing about a longitudinal axis;
  - at least one port in at least one of the bushing and journal pin for introducing a liquid lubricant; and

Ser. No. 10/725,165

a solid lubricant within a matrix on at least one of the bushing and journal pin, a distribution of said solid lubricant forming means for providing extended operation after a loss of said liquid lubricant.